



PATENT ABSTRACTS OF JAPAN

(11)Publication number : 09-155588

(43)Date of publication of application : 17.06.1997

(51)Int.Cl.

B23K 35/26

C22C 13/00

H05K 3/34

(21)Application number : 07-334081

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(22)Date of filing : 29.11.1995

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(54) LEADLESS SOLDER ALLOY

(57)Abstract:

PROBLEM TO BE SOLVED: To obtain a leadless solder alloy which thermally and safely solders electronic parts, is excellent in tension and is sufficient in elongation by incorporating respective prescribed amts. of Ag, Cu, In and P or Ga into this alloy and consisting the balance of Sn.

SOLUTION: The leadless solder to be used in the case the electronic parts are packaged to a printed circuit board is composed of 0.5 to 3.5wt. % Ag, 0.3 to 2.0wt. % Cu and the balance Sn. P or Ga is preferably added at ≤ 0.5 wt. % therein in order to prevent oxidation. The Sn has extremely little toxicity and is capable of imparting excellent wettability to a base metal and is inexpensive. The Ag is added in order to lower the m. p. of the solder to the m. p. of the Sn or below and to improve mechanical strength. The Cu not only lowers the m. p. of the solder but further improves the mechanical characteristics by the synergistic effect with the Ag. The In is added in order not only to lower the m. p. of the solder but to improve the mechanical strength. The P or Ga is added in order to obviate the degradation in the mechanical strength by oxidation.

LEGAL STATUS

[Date of request for examination]

10.07.2002

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

<http://www19.ipdl.jpo.go.jp/PA1/result/detail/main/wAAAMvaa7rDA409155586P1.h...> 17/05/2004

19/05 '04 WED 11:23 FAX 020 8881 1088
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[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against
examiner's decision of rejection]

[Date of extinction of right]

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